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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
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ART UNIT	PAPER NUMBER
1634	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/848,986	Raz
Examiner	**Art Unit**
Arun Chakrabarti	1634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- *Extensions of time may be available under the provisions* of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *May 21, 2003* .

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *8-12, 21, and 22* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *8-12, 21, and 22* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ *Information* Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *Detailed Action*

DETAILED ACTION

Specification

1. New claim 22 has been added. Claim 8 has been amended.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 8-11 and 22 are rejected under 35 U.S.C. 103(a) over Dynan (PCT International Publication Number WO 99/33971) (July 8, 1999) in view of Dynan et al. (U.S. Patent 6,441,158 B1) (August 27, 2002).

Dynan teaches a method for identifying an agent that modulates a biological activity of DNA-PK (Abstract), comprising:

a) adding an agent to be tested to a sample, the sample comprising DNA-PK and an immunomodulatory nucleic acid molecule, under conditions which favor binding of the immunomodulatory nucleic acid molecule to DNA-PK, thereby forming a test sample (Example 4, Page 45, line 1 to page 46, line 11); and

b) detecting a biological activity of DNA-PK protein in the test sample, as compared to a control sample lacking the agent, wherein an increase or a decrease in the biological activity of DNA-PK indicates that the agent modulates a biological activity of DNA-PK (Figure 2A and Example 4, page 46, lines 12-22).

Dynan teaches a method, wherein the biological activity of DNA-PK is binding to an immunomodulatory nucleic acid molecule (Abstract and Example 1, and Page 2, lines 8-32).

Dynan teaches a method, wherein the method is a cell-free method, and the immunomodulatory nucleic acid molecule is detectably labeled (Page 24, line 26 to page 28, line 7).

Dynan teaches a method, wherein the biological activity of DNA-PK is activation of DNA-PKcs kinase activity (Example 4, Page 45, lines 15-31).

This rejection is based on the fact that nucleic acid molecules, capable of binding with Ku protein, can modulate the immune system because Ku protein was first identified as an

autoantigen in sera from certain patients with autoimmune disease, and Ku protein is the regulatory component of the DNA-dependent protein kinase (Page 1, lines 15-33).

Dynan (PCT International Publication Number WO 99/33971) (July 8, 1999) does not teach the method, wherein the immunomodulatory nucleic acid molecule is a DNA molecule that, when bound to Ku antigen, activates DNA-PKcs.

Dynan et al. (U.S. Patent 6,441,158 B1) teaches the method, wherein the immunomodulatory nucleic acid molecule is a DNA molecule that, when bound to Ku antigen, activates DNA-PKcs (Column 1, lines 28-60 and Column 3, lines 28-45).

Dynan (PCT International Publication Number WO 99/33971) (July 8, 1999) does not teach the method, wherein the immunomodulatory nucleic acid molecule is a DNA molecule comprises the sequence 5' CG 3'.

Dynan et al. (U.S. Patent 6,441,158 B1) teaches the method, wherein the immunomodulatory nucleic acid molecule is a DNA molecule comprises the sequence 5' CG 3'. (Abstract, line 18)..

It would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to combine and substitute the method wherein the immunomodulatory nucleic acid molecule is a DNA molecule that, when bound to Ku antigen, activates DNA-PKcs of Dynan et al. (U.S. Patent 6,441,158 B1) in the method of Dynan (PCT International Publication Number WO 99/33971) (July 8, 1999) since Dynan et al. (U.S. Patent 6,441,158 B1) states, "Interaction of the Ku protein and the DNA is involved in the activation of DNA-PK kinase

activity (Column 3, lines 43-45) " . An ordinary practitioner would have been motivated to combine and substitute the method wherein the immunomodulatory nucleic acid molecule is a DNA molecule that, when bound to Ku antigen, activates DNA-PKcs of Dynan et al. (U.S. Patent 6,441,158 B1) in the method of Dynan (PCT International Publication Number WO 99/33971) (July 8, 1999) in order to achieve the express advantage, as noted by Dynan et al. (U.S. Patent 6,441,158 B1), of an interaction of the Ku protein and the DNA which is involved in the activation of DNA-PK kinase activity.

4. Claims 12 and 21 are rejected under 35 U.S.C. 103(a) as being obvious over Dynan (PCT International Publication Number WO 99/33971) (July 8, 1999) in view of Dynan et al. (U.S. Patent 6,441,158 B1) (August 27, 2002) further in view of Ray (PCT International Publication Number WO 99/11275) (March 11, 1999).

Dynan (PCT International Publication Number WO 99/33971) (July 8, 1999) in view of Dynan et al. (U.S. Patent 6,441,158 B1) (August 27, 2002) teach the method of claims 8-11 and 22 as described above.

Dynan (PCT International Publication Number WO 99/33971) (July 8, 1999) in view of Dynan et al. (U.S. Patent 6,441,158 B1) (August 27, 2002) do not teach the method, wherein an amount of IL-12 produced by the cell is measured.

Ray teaches the method, wherein an amount of IL-12 produced by the cell is measured (Figure 1, and Claims 34 and 36).

Dynan (PCT International Publication Number WO 99/33971) (July 8, 1999) in view of Dynan et al. (U.S. Patent 6,441,158 B1) (August 27, 2002) do not teach the method, wherein the immunomodulatory nucleic acid molecule comprises a nucleotide sequence selected from 5'-Purine-Purine-C-G-Pyrimidine-Pyrimidine-3'.

Ray teaches the method, wherein the immunomodulatory nucleic acid molecule comprises a nucleotide sequence selected from 5'-Purine-Purine-C-G-Pyrimidine-Pyrimidine-3 (Claim 2, Page 42).

It would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to combine and substitute the method wherein IL-12 is measured and the immunomodulatory nucleic acid molecule comprises a nucleotide sequence selected from 5'-Purine-Purine-C-G-Pyrimidine-Pyrimidine-3 of Ray in the method of Dynan (PCT International Publication Number WO 99/33971) (July 8, 1999) in view of Dynan et al. (U.S. Patent 6,441,158 B1) (August 27, 2002) since Ray states, "The invention relates to methods for preventing or reducing antigen-stimulated, granulocyte-mediated inflammation in tissue of an antigen-sensitized mammal host by delivering an immunostimulatory oligonucleotide to the host. In addition, methods for using the immunostimulatory oligonucleotides to boost a mammal host's immune responsiveness to a sensitizing antigen (without immunization of the host by the antigen) and shifting the host's immune responsiveness to a Th1 phenotype to achieve various therapeutic ends are provided (Abstract)". An ordinary practitioner would have been motivated to combine and substitute the method wherein IL-12 is measured and the immunomodulatory nucleic acid

molecule comprises a nucleotide sequence selected from 5'-Purine-Purine-C-G-Pyrimidine-Pyrimidine-3 of Ray in the method of Dynan (PCT International Publication Number WO 99/33971) (July 8, 1999) in view of Dynan et al. (U.S. Patent 6,441,158 B1) (August 27, 2002), in order to achieve the express advantage, as noted by Ray, of an invention that relates to methods for preventing or reducing antigen-stimulated, granulocyte-mediated inflammation in tissue of an antigen-sensitized mammal host by delivering an immunostimulatory oligonucleotide to the host and in addition, provides methods for using the immunostimulatory oligonucleotides to boost a mammal host's immune responsiveness to a sensitizing antigen (without immunization of the host by the antigen) and shifting the host's immune responsiveness to a Th1 phenotype to achieve various therapeutic ends.

Response to Amendment

5. In response to amendment, new 103(a) rejection has been included.

Response to Arguments

6. In response to argument, previous 102(a) rejections have been withdrawn and new 103(a) rejections have been included. Applicant's arguments with respect to all pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CAR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CAR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arun Chakrabarti, Ph.D., whose telephone number is (703) 306-5818. The examiner can normally be reached on 7:00 AM-4:30 PM from Monday to Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion, can be reached on (703) 308-1119. The fax phone number for this Group is (703) 305-7401. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the analyst of this Group Chantae Dessau, who can be reached at (703)605-1237.

GARY BENZION, PH.D
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

Arun Chakrabarti,

Patent Examiner,

June 10, 2003